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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/689,738 | 10/13/2000 | Anil K. Agarwal | A7451 | 6027 |
| 7590 09/07/2004 | | | | |
| SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC | | EXAMINER | | |
| 2100 Pennsylvania Avenue N.W. | | LEE, CHI HO A | | |
| Washington, DC 20037-3213 | | | | |
| | | ART UNIT | PAPER NUMBER | |
| | | 2663 | | |

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 09/689,738 | Applicant(s) AGARWAL ET AL. | |
| | Examiner Andrew Lee | Art Unit 2663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher et al U.S. Patent Number 6,647,020.

Re Claims 1 and 14, fig. 1 teaches plurality of terminals 148, 150, 152, 154, 156 (one of terminal is a master terminal: applicant should note that the master terminal has no apparent function in the body of the claim) each associated with a particular site and local routers 108 & 110 supporting IP multicast services; further teaches Zone controller 116 (a route server) in communication with plurality of local routers for establishing IP multicast and maintaining and dynamically assigning multicast control addresses to control message transmission between participating multicast group (See col. 5, lines 65- col. 6, lines 1-9 & col. 8, lines 28-60). In particular, upon multicast request from a mobile terminal, the zone controller 116 returns "Call Grant Message" to the base site 102 (a controller) or any other participating sites (See Col. 9, lines 1-16), further teaches the base site can operate in TDMA slots (See col. 4, lines 20-48) for allocating broadcast bursts to the mobile terminals wherein the allocation of time slot initiated by a ACK message from the Zone controller. Maher et al fails to explicitly teach the network 100 of fig. 1 to include meshed satellites in TDMA. However, one skilled in the art

would have been motivated to incorporate the meshed satellite connection into the network of fig. 1 to expanded coverage. Hence, by incorporate the network 100 of fig. 1 with satellite gateway, IP multicast service can be expanded to distant locations serviced by the satellites.

Re Claim 2, refer to Claim 1, wherein the base site inherently allocates burst through at least one slot in TDMA frame initiated by the mobile terminal and granted by the zone controller (router server).

Re Claim 3, refer to Claim 1, wherein upon establishment and initiation of the IP multicast service by the Zone controller 116, it is the mobile terminal to maintain or leave the IP multicast session.

Re Claim 4, refer to Claim 2, wherein the mobile terminal uses the control channel/slot to request IP multicast service to the base site that relay the request to the Zone controller 116. Upon a grant message from the Zone controller to all participating base sites, each base site broadcasts the grant message on it control slot whereby the mobile terminal listens to the broadcast bursts.

Re Claim 5, refer to Claim 4, Maher fails to explicitly teach the BTP generation algorithm. However, Applicant admits that this is a known algorithm. Hence, one skilled in the art would have been motivated to use a known BTP algorithm into the burst allocation at the base site for ease of implementation.

Re Claim 6, refer to Claim 2, wherein the connection between the base site and mobile terminal supports broadcast transmission.

Re Claims 7, 8, refer to Claim 2, when base sites are operating in TDMA frames, each base site inherently is limited by a maximum multicast capacity, i.e., number of assignable time slots configurable by the network operator. One skilled in the art would have been motivated to dynamically allocate the broadcast burst according to the user demand for bandwidth efficiency. Hence, by monitoring the demands (volume of traffic) of each mobile user in the local site, the base site can efficiently allocate unused resources to improve throughput.

Re Claim 9, refer to Claim 1, wherein when the mobile terminal requests for an IP multicast session, the request inherently includes its mobile ID to be transmitted to the Zone controller (exchanging routing information).

Re Claim 10, refer to Claim 1, once the zone controller identifies a multicast control address (routing information), the message is transmitted to the mobile terminal via the base site.

Re Claims 11-13, fig. 1 supports both DVMRP and PIM-SM multicast routing protocols (See col. 6, lines 24-50).

Re Claim 15, refer to Claim 1, wherein the Zone controller 116 manages payload transmission of the IP multicast session (transmitting IP multicast packets from a source to said route server); Zone controller 116, upon multicast request, assigns and transmits multicast control addresses to requesting mobile terminal (forwarding routing information to said terminal); base site associated with the mobile terminal broadcasts IP multicast packets received from Zone controller (broadcasting) in TDMA slots;

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Zone controller 116 receives IP multicast requests and dynamically assigns multicast addresses call to call basis (refining a receiving set5 of said terminals) and updating it's table based on the JOIN messages (prune message) to the requesting terminals.

Re Claim 16, upon receiving a Grant message from the Zone controller 116, the mobile terminal transmits and instructs the local routers; afterworth the local routers transmits PIM-SM "join" messages to the core router (a rendezvous point) and then to the Zone controller (See col. 7, lines 12-30); since the zone controller dynamically assigns addresses, the table within the zone controller is constantly updated on call to call basis (updating said routing information in router server) wherein the core router provide distribution of control and data messages (multicasting IP packets) to the local routers and associated mobile terminals wherein unicasting is formed between the Zone controller and the core router.

Response to Arguments

3. Applicant's arguments filed 6/30/04 have been fully considered but they are not persuasive.

Regarding Claim 1, Applicant argues that Maher et al fails to teach "a router server for establishing and maintaining routing information for a plurality of routers".

Examiner disagrees, as set forth in paragraph 2 of O.A..

In col. 5, lines 65 ~ col. 6, lines 1-26, Maher teaches that the Zone Controller 116 dynamically assigns and manages control IP multicast addresses and control messages between sites, wherein the sites are associated with local routers. Maher teaches that IP multicast addresses are maintained by the local routers of the sites (See col. 6, lines

24-26), however, it is the Zone Controller that performs the establishing of the IP multicast by dynamically assigning and identifying IP multicast addresses on a call to call basis. Hence, the Zone Controller inherently includes a table of assigned or active multicast routing information for the local routers, i.e., "maintaining routing information for a plurality of routers". Further

Applicant argues that, "routing information is exchanged only between each router and the route server and not among all router". However, this limitation is not claimed.

Applicant further argues, "operative to allocate broadcast burst to the terminal based on requests from the terminal via said route server".

Examiner disagrees.

As set forth in the O.A. paragraph 23, The base site 102 (a controller) allocates TDMA broadcast bursts to the mobile terminals when a ACK message is received from the Zone controller to initiate IP multicast session (See col. 4, lines 20-48).

Finally Applicant argues the limitation, "a mesh TDMA satellite".

In response to applicant's argument that there is no suggestion to modify the references, the examiner recognizes that obviousness can only be established by modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is the knowledge generally

available to one of ordinary skill in the art to have modified the local wireless system in Meher to be expanded with satellite connectivity.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Lee whose telephone number is 703-305-1500. The examiner can normally be reached on Monday to Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AI
9/2/04

ADONIS
PATENT EXAMINER

